

American Geotech, Inc. 601 Ohio Avenue Charleston, WV 25302 (304) 340-4277 Fax 340-4278

### AMERICAN GEOTECH, INC.

Geotechnical, Environmental and Testing Engineers

### **REPORT OF**

LIMITED ENVIRONMENTAL EXPLORATION
EXISTING RAILROAD TRESTLE BETWEEN
KANAWHA BOULEVARD, WEST AND MAIN STREET
CHARLESTON, WEST VIRGINIA

**Prepared For** 

CITY OF CHARLESTON
CHARLESTON, WEST VIRGINIA
MAY - 2009

(This report contains 4 pages, plus appendices)

### <u>AMERICAN GEOTECH, INC.</u>

### GEOTECHNICAL, ENVIRONMENTAL AND TESTING ENGINEERS

601 OHIO AVENUE CHARLESTON, WV 25302 (304) 340-4277 Fax (304) 340-4278

May 11, 2009

Mr. Chris Knox The City of Charleston P.O. Box 2749 Charleston, WV 25330

Re: Report of Limited Environmental Exploration

**Existing Railroad Trestle between** 

Kanawha Boulevard, West and Main Street

Charleston, West Virginia

Dear Mr. Knox:

In accordance with your request and authorization, American Geotech, Inc. (AGI) is pleased to submit our report for the limited environmental exploration of the site for the above referenced project in Charleston, West Virginia. The work was authorized by Mr. Chris Knox, and was performed in accordance with our verbal agreement.

### **Project Information**

This report covers the limited environmental exploration of the existing elevated C&O railroad trestle, which is now out of service. The existing railroad trestle alignment runs generally over the abandoned alignment of Georgia Street, and extends from Kanawha Boulevard northeastward to Main Street (passing over 2<sup>nd</sup> Avenue and Grant Avenue). The trestle consists of a steel superstructure with wooden ties for the section between Kanawha Boulevard and 2<sup>nd</sup> Avenue, and a timber frame beyond the northern side of 2<sup>nd</sup> Avenue. The trestle is bounded by the future West Side Elementary School site, residential and commercial properties to the west, residential and commercial properties to the east, Main Street to the north and Kanawha Boulevard to the south. It is proposed to adapt and convert the existing railroad trestle to a pedestrian walkway, which would allow pedestrian traffic to cross the Kanawha River. The trestle was constructed in the early 1900's by the New York Central Railroad.

#### **Subsurface Exploration**

Five (5) soil test borings (EB-1 to EB-5) were performed from April 30 to May 1, 2009, at the approximate locations shown on the attached Test Boring Location Plan. Test borings EB-1 to EB-3

were advanced using 3.25-inch inside diameter hollow-stem augers and a truck-mounted drill rig. The samples were obtained using a 2.0-inch exterior diameter split spoon sampler, which was driven into the soil by a 140-pound automatic hammer falling a distance of 30 inches. Borings EB-4 and EB-5 were completed using hand sampling equipment. The representative material samples were obtained at the intervals shown on the test boring logs attached to this report. The logs reference the depth, thickness, and visual description of the encountered soil strata, as well as the sample identification data.

The sampling tools were decontaminated before commencement of the sampling activities and between each sample interval. The decontamination procedures included washing the sampling tools in a non-phosphatic detergent solution, followed by a potable water rinse. The sampling tools were then rinsed with de-ionized water. The representative samples obtained in the stainless-steel split spoon sampler were split vertically, with half of the sample being placed in a glass sample jar for later material classification and the other half collected in a clean 4 oz. glass laboratory jar and sealed with a Teflon lined lid for possible laboratory analysis. Field personnel wore disposal latex gloves to ensure that no outside contaminants were introduced into the material samples when handled. The representative samples selected for laboratory analysis were placed on ice in a cooler and preserved at 4° C for transportation to the laboratory.

### Subsurface Conditions

As stated, five (5) soil borings (EB-1 to EB-5) were drilled below the existing trestle at the approximate locations shown on the Test Boring Location Plan. Approximately 6 inches of topsoil materials were present at the surface at most test boring locations. Fill material was encountered in soil test borings EB-4 and EB-5 to depths of approximately 2.5 to 3.0 ft. below the present ground surface (bgs). In general, the subsurface profile is described as unengineered fill materials underlain by natural alluvial soils, consisting of silty clay materials.

The existing fill materials in test borings EB-4 and EB-5 were described as dark brown, black and gray clayey gravel and clayey sand with gravel. The fill materials were noted as moist to damp. The referenced fill soil strata extended to depths ranging from 2.5 feet to 3.0 feet bgs, whereupon natural alluvial soil deposits were encountered.

The natural soil deposits in all test borings consisted of sandy and silty clay. This material stratum extended to the completion depths ranging from 6.0 to 9.5 feet bgs. The colors noted in these strata included brown and gray, and the materials were consistently described as moist.

Groundwater was not encountered, either during or at completion of the drilling, in any of the test borings. We should state that fluctuations in the groundwater table, as well as perched or trapped water, can occur as a result of seasonal variations in precipitation, evaporation, overland runoff, or other factors not immediately apparent at the time of our exploration.

#### **Laboratory Analysis**

Nineteen (19) representative material samples (a sample from each sampled interval) were prepared and submitted for laboratory analysis. The laboratory sample identification assigned to the samples on the chain-of-custody identifies the test boring and sample number from the boring logs (e.g. EB-2-3). The scope-of-services for the laboratory testing was defined by the client and included performing analyses on every recovered sample, from the ground surface to the completion depth, to evaluate the possible presence and vertical extent of any residual contamination.

The soil samples were submitted to A C & S, Inc., located in Nitro, West Virginia (WV-DEP Certificate #010). Most of the samples were analyzed for the presence of total cresols (o/m/p) using EPA method 8270D, and two (2) samples were analyzed for full range semi volatile organic compounds (s-VOC's) using EPA method 8270C. The current de minimis RBC levels and the laboratory analytical results for the detected compounds are summarized in Table 2. The laboratory data sheets, which list the analytical Method Detection Limits (MDL's), and the chain-of-custody form have been included at the end of this report.

Table 2
Screening Levels and Analytical Results of Soil Samples (ppm)

Parameter	VRP de minimis Screening Levels	EB-4-1 0.0'-1.5'	EB-5-1 0.0'-2.0'
Total Cresol	200	ND	ND
Benzo(a)anthracene	29	2.77	ND
Benzo(a)pyrene	2.9	7.34	0.83
Benzo(b)fluoranthene	29	16.2	1.82
Benzo(ghi)perylene	23,000	3.97	ND
Benzo(k)fluoranthene	290	4.47	1.75
Chrysene	2,900	4.65	1.12
Fluoranthene	30,000	5.18	ND
Indeno(1,2,3-cd)pyrene	29	4.07	ND
Phenanthrene	410,000	ND	1.03
Pyrene	54,000	6.18	1.61

ND=Not detected.

The screening levels used for comparison in Table 2 were obtained from the WV DEP Voluntary Remediation Program De Minimis Standards Table 60-3B (July 2008) for industrial sites. Total cresol (o/m/p) was not detected in any of the representative laboratory samples above the method detection limits (MDL). Based upon the results of the laboratory analytical testing, residual

contamination was present above the MDL's in samples EB-4-1 and EB-5-1. The detected contamination at these locations consists of a specific group of s-VOC's. This group of sixteen semi-volatile organics compounds is classified as poly-aromatic hydrocarbons (PAH). PAH is a very common contaminant found on railroad sites and results from the combustion of wood, coal and gasoline/diesel fuels, use of coal-tar based materials in railroad equipment, and from creosote. As shown in Table 2, essentially all of the detected PAH related contaminants were well below the current WV DEP screening levels for industrial sites. However, benzo(a)pyrene was present in sample EB-4-1 at a concentration of 7.34 ppm, which is above the *de minimis* level of 2.9 ppm.

Based on the presence of PAH's in the surface samples from borings EB-4 and EB-5, it appears that the soil materials at these boring locations have been impacted by the use of the site for railroad applications. It is our opinion that the potential risk associated with ambient street level exposure to the detected compounds is relatively low. We recommend that the results of this limited exploration be conveyed to the appropriate regulatory agency for review, to determine what additional assessment is needed.

We appreciate the opportunity of providing these services to you. If you have any questions or require further services, please contact our office at (304) 340-4277.

Respectfully Submitted,

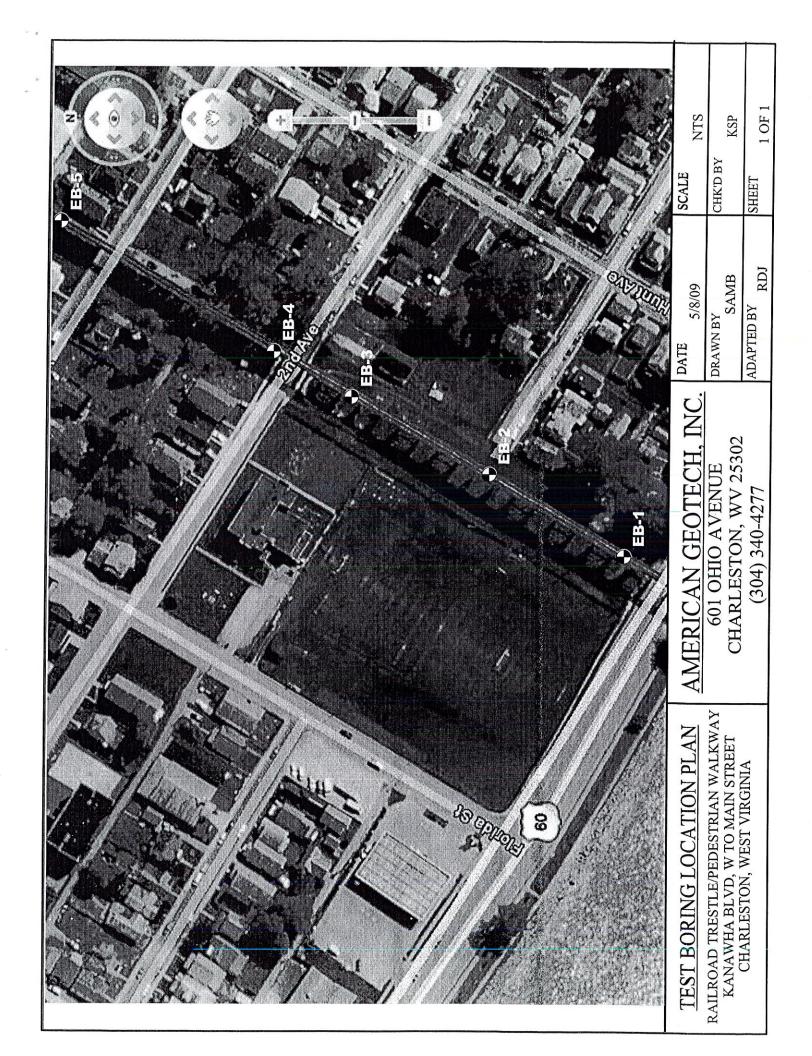
AMERICAN GEOTECH, INC.

Kanti S. Patel, P.E.

Principal Engineer

Ryan D. Jackson, C.E.I. Environmental Scientist

# TEST BORING LOCATION



# Soil Test Boring Logs

### Terminology

#### Grain Size

Soil Fraction		Particle Size	U.S. STD. Sieve Size
Boulders		Larger than 12"	Larger than 12"
Cobbles		3" to 12"	3" to 12"
Gravel	Coarse	%" to 3"	%" to 3"
	Fine	4.75 mm to ¾"	#4 to ¾"
Sand	Coarse	2.00 to 4.75 mm	#10 to #4
	Medium	0.425 to 2.00 mm	#40 to #10
•	Fine	0.075 to 0.475 mm	#200 to #40
Fines	Clays & Silts	smaller than 0.075 mm	smaller than #200

Plasticity characteristics differentiate between silts and clays

### Relative Density

Term	,	"N" Value
very loose		0 - 4
loose		5 - 10
medium dense		11 - 30
dense		31 - 50
very dense		over 50

#### Consistency

	Consistent	, y
Тегли	ID Procedures	"N" Value
Soft	Easily penetrated by thumb	0 - 4
Medium Stiff	Penetrated by thumb with moderate effort	5 - 8
Stiff	Penetrated by thumb with great effort	9 - 15
Very Stiff	Readily indented by thumbnail	16 - 30
Hard	Indented by thumbnail with difficulty	31 - 50
Very Hard		over 50

### Relative Moisture Description

Dıy	Soil noticeably below optimum moisture
Moist	near optimum, but less then liquid limit
Damp	near or exceeding liquid limit
Wet	soil below water table

### **Symbols**

### Drilling and Sampling

RC - Rock Coring: Sizes AW, BW, NW, NQ

RQD - Rock Quality Designator

DC - Drive Casing

HSA - Hollow Stem Auger

FA - Flight Auger

AG - Auger

HA - Hand Auger

SS - 2" diameter Split Barrel Sampler

ST - 3" diameter Thin-Walled Tube Sampler

AS - Auger Sample

WS - Wash Sample

NR - No Recovery

S- Sounding

ATV - All Terrain Vehicle -

### Laboratory Tests

PP - Pocket Penetrometer Reading, Tons/ft2

QU - Unconfined Strength, Tons/ft<sup>2</sup>

W - Moisture Content, %

LL - Liquid Limit, %

PL - Plastic Limit,%

D - Dry Unit Weight, lbs/ft3

#### Standard Penetration Test

The penetration resistance, or N-value as it is commonly referred to, is the summation of the number of blows required to drive the last two successive 6" penetrations of the 2" diameter -18" long split barrel sampler. The sampler is driven with a 140 lb. weight falling 30". The standard penetration test is performed in compliance with procedures as set forth in ASTM D-1586

#### Water Level Measurement

NW - No water encountered

WD - While drilling

BCR - Before casing removal

ACR - After casing removal

CW - Caved and wet

CM - Caved and moist

BP - Backfilled upon completion

			LOG OF ENVIRONME	NTAI	L TES	Γ BORING				
Client:		City	of Charleston			Boring N	ımber:	EB	-1	
Project:		Exist	ing Railroad Trestle - Charleston	, WV		Star	t Date:	4/3	0/09	
Boring Lo	ocation:	As sh	own on plan			Comp	. Date:	4/3	0/09	
Ref. Elev	ation:	None	available			Job Nı	ımber:			
Elev.	Depth		Description of Material			SAMPL	E		4 4 4	PID
(Ft)	(Ft)			NO.	Туре	Depth (feet)	Blows	/6"	Rec.	PPMV
	0.0	0.5'	Topsoil.							
	0.5									
		9.0'	Brown sandy to silty clay, moist.	1 2 3 4	SS SS SS	0.0' - 1.5' 2.5' - 4.0' 5.0' - 7.0' 7.5' - 9.5'				
	9.5									
			Boring Completed.							
								ļ		
,										
G	eneral Notes		AMERICAN GEOTEG	 СН. П	VC.		Vater Leve	el Obse	rvations	
Driller:	J, Ne	al	601 Ohio Avenue	<u>9 44</u>	<u></u> ,	Immediate (Ft):				
Rig No.	CME	·55	Charleston, West Virginia	2530	2	At Completion (	Ft): NW		·	<del></del> _
Rig Type:	Truc		(304) 340-4277			After (hrs.): BP		Feet: 1	١W	
Method:	HSA/	SS				Water Used in D	rilling (Ft)	: NW		

		· <del></del>	LOG OF ENVIRONME	NTAI	TES	Γ BORING			
Client:		City of	Charleston			Boring N	umber: EB	-2	<del> </del>
Project:		Existin	g Railroad Trestle - Charleston	, WV		Star	t Date: 4/3	0/ <b>0</b> 9	
Boring L	ocation:	As show	wn on plan			Comp	. Date: 4/3	0/ <b>0</b> 9	
Ref. Elev	ation:	None a	vailable	•		Job N	umber:		
Elev.	Depth	Description of Material				SAMPL	Æ		PID
(Ft)	(Ft)			NO.	Type	Depth (feet)	Blows/6 <sup>n</sup>	Rec.	PPMV
jugi kiralut atrahisti ufuri	0.0	Environ de proprietation de la constant de la const	overstandelingen er vin er		CLO SHEET	The annual business of behind the annual	province (Swifted and Laborate of abbodies	Lecture conspect	Tables in Height to 4 construct a to 100 const
		0.5'	Topsoil.						
	0.5								
		9.0'	Brown to brown and gray	1 2	SS SS	0.0' - 2.0' 2.5' - 4.5'			
			silty clay, moist.	3	SS	5.0' - 7.0'			
				4	SS	7.5' - 9.5'			
	9.5								
			Boring Completed.						
			:						
				~~~		<u> </u>	Water Level Ci		
Driller:	General Notes  J. No	eal	AMERICAN GEOTEO 601 Ohio Avenue	<u> </u>	<u>NC</u> .	Immediate (Ft):	Water Level Obs NW	rvations	
Rig No.	CME		Charleston, West Virginia	2530	2	At Completion			
Rig Type:	Truc		(304) 340-4277			After (hrs.): BP	Feet:	NW	<del></del> _
Method:	HSA	SS				water Used in I	Orilling (Ft): NW		

			LOG OF ENVIRONME	NTAI	TES	Г BORING			<u> </u>	<del></del>
Client:		City o	f Charleston			Boring N	ımber:	EB	-3	
Project:		Existi	ng Railroad Trestle - Charleston	, wv	_	Star	t Date:	4/3	0/09	
Boring Lo	ocation:	As she	own on plan			Comp	. Date:	4/3	0/09	
Ref. Elevation: None available						Job N	ımber:			
Elev.	Depth		Description of Material			SAMPL	E		PID	
(Ft)	(Ft)			NO.	Туре	Depth (feet)	Blows	/6"	Rec.	PPMV
	0.0	0.5'	Topsoil.	Separate Man	Same and the see the	ellending tipe, in it was the public Court of the in-	de rka mpile	el,	Mario Sipo J. Co. M.	ar wan san san san san san san san san san s
	0.5									
		9.0'	Brown to brown and gray silty clay, moist.	1 2 3 4	SS SS SS	0.0' - 2.0' 2.5' - 4.5' 5.0' - 7.0' 7.5' - 9.5'				
	9.5									
			Boring Completed.							
									;	
	!								:	
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G	eneral Notes		AMERICAN GEOTEC	CH, II	NC.		Water Lev	el Obse	ervations	
Driller:	J. No		601 Ohio Avenue		•	Immediate (Ft):		<u></u>	<del></del>	
Rig No. Rig Type:	CME Truc		Charleston, West Virginia (304) 340-4277	1 2330	<b>L</b>	At Completion ( After (hrs.): BP	,1-t). IN W	Feet:	NW	
Method:	HSA		(501) 510 1211			Water Used in I	Orilling (Ft			

			LOG OF ENVIRONME	NTAI	L TES	T BORING				
Client:		City	of Charleston			Boring N	umber: EB	-4		
Project:		Exist	ting Railroad Trestle - Charleston	, wv		Star	Start Date: 4/30/09			
Boring Lo	ocation:	As sl	nown on plan			Comp	. Date: 4/3	0/09		
Ref. Eleva	ation:	None	e available			Job Ni	umber:			
Elev.	Depth		Description of Material			SAMPL	E		PID PPMV	
(Ft)	(Ft)			NO.	Туре	Depth (feet)	Blows/6"	Rec.		
	0.0	0.5'	Topsoil.					!		
	0.5									
ļ		2.5'	Dark brown to black clayey gravel (FILL), damp.	1 2	SS SS	0.0' - 1.5' 1.5' - 3.0'				
	3.0								ı	
		3.0'	Brown and gray silty clay, moist.	3 4	SS SS	3.0' - 4.5' 4.5' - 6.0'				
	6.0									
			Boring Completed.		=					
i						; ;				
	eneral Notes			777 77	T.C.		Water Level Obse	muntion:		
Driller:	J. Ne	al	AMERICAN GEOTEC 601 Ohio Avenue	.н <u>, П</u>	<u>NC</u> .	Immediate (Ft):		evations		
Rig No.			Charleston, West Virginia	25302	2	At Completion (				
Rig Type:	Han		(304) 340-4277			After (hrs.): BP	Feet: 1	4W		
Method:	HA/S	SS				Water Used in D	rilling (Ft): NW			

	·		LOG OF ENVIRONME	NTA	L TES	T BORING	··		
Client:		City	of Charleston		·	Boring N	umber: EB	-5	<del></del>
Project:		Exist	ing Railroad Trestle - Charlestor	ı, WV		Star	t Date: 5/1	/09	<del></del>
Boring Lo	ocation:	As sh	nown on plan			Comp	. Date: 5/1	/09	
Ref. Elev	ation:	None	available			Job Ni	umber:		
Elev.	Depth		Description of Material			SAMPL	Ē		PID
(Ft).	(Ft)			NO.	Type	Depth (feet)	Blows/6"	Rec.	PPMV
	0.0 3.0 6.0	3.0'	Dark brown and gray clayey sand with gravel (FILL), moist.  Brown and gray silty clay, moist.  Boring Completed.	1 2	SS SS	0.0' - 2.0' 2.0' - 4.0' 4.0' - 6.0'			
			; ;						
	eneral Notes		AMERICAN GEOTEC	<u>CH, II</u>	<u>IC</u> .		Vater Level Obse	rvations	
Driller: Rig No.	J. Ne	al	601 Ohio Avenue	25201	)	Immediate (Ft): 1 At Completion (I		<del></del>	
Rig Type:	Han	ď	Charleston, West Virginia (304) 340-4277	433Vz	•	After (hrs.): BP	Feet: N	ıw	
Method:	HA/S				<del></del> -	Water Used in D			

# ANALYTICAL RESULTS



Serving the chemical industry since 1986 Specials Communications Services - Fig. Tank Clean of

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 09:15 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970882

Sample Source:

Grab

Client Sample ID: EB-1, S-1, 0'-1.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/05/09 15:28		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970882

Report Date: 5/6/2009

QC Type	Result	Units	Batch	
2-Fluorobiphenyl	83	% Rec.	2697	
Terphenyl-d14	86	% Rec.	2697	
Nitrobenzene-d5	81	% Rec.	2697	

Reviewed by:

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rail Tenk-Heating

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 09:25 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970883

Sample Source:

Grab

Client Sample ID:

EB-1, S-2, 2.5'-4'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/05/09 16:33		SW 8270D	PMV_

### QC Data by Sample:

Sample ID: 09970883

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	83	% Rec.	2698
Terphenyl-d14	82	% Rec.	2698
Nitrobenzene-d5	74	% Rec.	2698

Reviewed by:

Rebecca Kiser

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rain Tank Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 09:35 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970884

Sample Source:

Client Sample ID:

Grab

Site:

EB-1, S-3, 5'-7'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/05/09 17:37		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970884

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	79	% Rec.	2699
Terphenyl-d14	82	% Rec.	2699
Nitrobenzene-d5	78	% Rec.	2699

Reviewed by:

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rate Tank Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

4/30/2009 09:45 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970885

Sample Source:

Grab

Client Sample ID:

EB-1, S-4, 7.5'-9'

.

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/05/09 18:42	_	SW 8270D	PMV

Site:

### QC Data by Sample:

Sample ID: 09970885

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	85	% Rec.	2700
Terphenyl-d14	88	% Rec.	2700
Nitrobenzene-d5	80	% Rec.	2700

Reviewed by:

Rebecca Kiser

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specify Chemical - Laboratory Services - Rail Tark Cleaning

### Report of Analysis

Name:

American Geotech

Ryan Jackson 601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 10:00 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970886

Sample Source:

Grab

Client Sample ID:

EB-2, S-1, 0-2'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles			İ				
Total Cresol	ND	mg/kg	1.5	05/05/09 19:47		SW 8270D	PMV

### **QC** Data by Sample:

Sample ID: 09970886

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	81	% Rec.	2701
Terphenyl-d14	85	% Rec.	2701
Nitrobenzene-d5	76	% Rec.	2701

Reviewed by:

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rail Tank Clean of

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 10:10 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970887

Sample Source:

Grab

Client Sample ID:

EB-2, S-2, 2.5'-4.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles			j				
Total Cresol	ND	mg/kg	1.5	05/05/09 20:51		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970887

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	91	% Rec.	2702
Terphenyl-d14	93	% Rec.	2702
Nitrobenzene-d5	91	% Rec.	2702

Reviewed by:

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboraton, Services - Rivi Fank Cleaming

#### Report of Analysis

Name:

American Geotech

Ryan Jackson 601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 10:20 4/30/2009 15:15

Report Date:

5/6/2009

Sample ID#:

09970888

Sample Source:

Grab

Client Sample ID: EB-2, S-2, 5'-7'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst	
Semi Volatiles						ON 0070D	DMAX	
Total Cresol	ND	mg/kg	1.5	05/05/09 21:57		SW 8270D	PMV	

### **OC Data by Sample:**

Sample ID: 09970888

Report Date: 5/6/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	86	% Rec.	2703
Terphenyl-d14	87	% Rec.	2703
Nitrobenzene-d5	86	% Rec.	2703

Reviewed by:

Return & Your

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical Laboratory Services - Rath Tank Cleaturg

### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 10:30 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970889

Sample Source:

Grab

Client Sample ID:

EB-2, S-4, 7.5'-9.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 13:11		SW 8270D	PMV

### **OC** Data by Sample:

Sample ID: 09970889

Report Date: 5/8/2009

QC Type	Result	Units	Batch	
2-Fluorobiphenyl	62	% Rec.	2747	
Terphenyl-d14	78	% Rec.	2747	
Nitrobenzene-d5	81	% Rec.	2747	

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Enhancing Services - Rad Time Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 10:50 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970890

Sample Source:

Grab

Client Sample ID: Site:

EB-3, S-1, 0'-2'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5_	05/07/09 13:53		SW 8270D	PMV_

### **OC** Data by Sample:

Sample ID: **09970890** 

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	79	% Rec.	2748
Terphenyl-d14	76	% Rec.	2748
Nitrobenzene-d5	66	% Rec.	2748

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laborating Services - Pale Took Cleaning

### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date:

4/30/2009 11:00 4/30/2009 15:15

Receipt Date: Report Date:

5/8/2009

Sample ID#:

09970891

Sample Source:

Grab

Client Sample ID:

EB-3, S-2, 2.5'-4.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles						·	-
Total Cresol	ND	mg/kg	1.5	05/07/09 14:35		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970891

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	88	% Rec.	2749
Terphenyl-d14	87	% Rec.	2749
Nitrobenzene-d5	102	% Rec.	2749

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specify them on claboratory Service - Rd. Task Learning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 11:15 4/30/2009 15:15

Report Date:

4/30/2009 15: 5/8/2009 Sample ID#:

09970892

Sample Source:

Grab

Client Sample ID:

EB-3, S-3, 5'-7'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 15:17		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970892

Report Date: 5/8/2009

QC Type	Result	Units	Batch	
2-Fluorobiphenyl	127	% Rec.	2750	
Terphenyl-d14	113	% Rec.	2750	
Nitrobenzene-d5	98	% Rec.	2750	

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical Laboratory Services - Rail Took Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 11:30 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970893

Sample Source:

Grab

Client Sample ID:

EB-3, S-4, 7.5'-9.5'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 15:59		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970893

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	110	% Rec.	2751
Terphenyl-d14	106	% Rec.	2751
Nitrobenzene-d5	124	% Rec.	2751

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 spends Chemical Laboratory Stocker-Edit Took Crewing

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

4/30/2009 13:00 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970894

Sample Source:

Grab

Client Sample ID:

EB-4, S-1, 0'-1.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analys
Semi Volatiles							
1,2,4,5-Tetrachlorobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
1,3,5-Trinitrobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
1,4-Naphthoquinone	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
1,4-Phenylenediamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
1-Naphthylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,3,4,6-Tetrachlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4,5-Trichlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4,6-Trichlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4-Dichlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4-Dimethylphenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4-Dinitrophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,4-Dinitrotoluene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,6-Dichlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2,6-Dinitrotoluene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Acetylaminofluorene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Chloronaphthalene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Chlorophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Methyl-4,6-dinitrophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Methylnaphthalene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Naphthylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Nitroaniline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Nitrophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
2-Picoline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
3,3'-Dichlorobenzidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
3,3'-Dimethylbenzidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
3-Methylcholanthrene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV

Reviewed by:

thaceaM baca

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 specials Chemical Laboratory Secrees - Rill Tark Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson 601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

4/30/2009 13:00 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970894

Sample Source:

Grab

Client Sample ID:

EB-4, S-1, 0'-1.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles	Rosure		-			,	
3-Nitroaniline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Aminobiphenyl	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Bromophenyl phenyl ether	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Chloro-3-methylphenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Chloroaniline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Chlorophenyl phenyl ether	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Nitroaniline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Nitrophenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
4-Nitroquinoline-1-oxide	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
5-Nitro-o-Toluidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
7,12-	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Dimethylbenz(a)anthracene							
a,a'-Dimethylphenethylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Acenaphthene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Acenaphthylene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Acetophenone	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Aniline	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Anthracene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Azobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzo(a)anthracene	2.77	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzo(a)pyrene	7.34	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzo(b)fluoranthene	16.2	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzo(ghi)perylene	3.97	mg/kg	0.5	05/07/09 16:42	<u> </u>	SW 8270D	PMV
Benzo(k)fluoranthene	4.47	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzoic Acid	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Benzyl Alcohol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
· · · · · · · · · · · · · · · · · · ·						AC&S In	

Reviewed by:

Tricecco M Vascar

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical Laboratory Services - Rd. Tack Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

4/30/2009 13:00 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970894

Sample Source:

Grab

Client Sample ID:

EB-4, S-1, 0'-1.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Bis (2-chloroethyl) ether	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Bis (2-ethylhexyl) phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Bis(2-chloroethoxy)methane	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Bis(2-chloroisopropyl)ether	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Butyl benzyl phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Carbazole	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Chrysene	4.65	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Dibenzo(a,h)anthracene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Dibenzofuran	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Diethyl phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Dimethyl phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Di-n-butyl phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Di-n-octyl phthalate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Diphenylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Ethyl Methanesulfonate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Fluoranthene	5.18	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Fluorene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Hexachlorobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Hexachlorobutadiene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Hexachlorocyclopentadiene	ND	mg/kg	1	05/07/09 16:42		SW 8270D	PMV
Hexachloroethane	ND	mg/kg	1	05/07/09 16:42		SW 8270D	PMV
Hexachloropropene	ND	mg/kg	1	05/07/09 16:42		SW 8270D	PMV
Indeno(1,2,3-cd)pyrene	4.07	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Isophorone	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Isosafrole	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
m/p-Cresol	ND	mg/kg	1	05/07/09 16:42		SW 8270D	PMV

Reviewed by:

triace, M Vaccon

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 See all Table Laborate Services and Table Chemical

### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 13:00 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970894

Sample Source:

Grab

Client Sample ID:

EB-4, S-1, 0'-1.5'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
m-Dinitrobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Methapyrilene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Methyl Methanesulfonate	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Naphthalene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Nitrobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosodiethylamine	ND	mg/kg	1	05/07/09 16:42		SW 8270D	PMV
N-Nitrosodimethylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosodi-n-butylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitroso-di-n-propylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosodiphenylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosomethylethylamine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosomorpholine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosopiperidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
N-Nitrosopyrolidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
o-Cresol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
o-Toluidine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
p-(Dimethylamino)azobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Pentachlorobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Pentachloronitrobenzene	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Phenacetin	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Phenanthrene	ND	mg/kg	0.5	05/07/09 16:42	ļ	SW 8270D	PMV
Phenol	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Pyrene	6.18	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
Pyridine	ND	mg/kg	0.5	05/07/09 16:42		SW 8270D	PMV
1		1 · 1			· I		1

Reviewed by:

Safrole

**Total Cresol** 

Trisacca M Vascar

ND

ND

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536

**PMV** 

**PMV** 

SW 8270D

SW 8270D

ND = Not Detected

\* = Above Specified Limit

mg/kg

mg/kg

0.5

1.5

05/07/09 16:42

05/07/09 16:42



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rail Tank Chemical

### QC Data by Sample:

Sample ID: 09970894

Report Date: 5/8/2009

QC Type	e Result		Batch	
2,4,6-Tribromophenol	58	% Rec.	2752	
2-Fluorobiphenyl	72	% Rec.	2752	
2-Fluorophenol	99	% Rec.	2752	
Nitrobenzene-d5	77	% Rec.	2752	
Phenol-d5	125	% Rec.	2752	
Terphenyl-d14	70	% Rec.	2752	

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specials Chemical - Libertanny Services - Rill Tank Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 13:10 4/30/2009 15:15

Report Date:

5/8/2009

Sample ID#:

09970895

Sample Source:

Grab

Client Sample ID:

EB-4, S-2, 1.5'-3'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 17:24		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970895

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	37	% Rec.	2753
Terphenyl-d14	42	% Rec.	2753
Nitrobenzene-d5	37	% Rec.	2753

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rad Tark Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date:

4/30/2009 13:20

Receipt Date: Report Date:

4/30/2009 15:15

5/8/2009

Sample ID#:

09970896

Sample Source:

Grab

Client Sample ID:

Site:

EB-4, S-3, 3'-4.5'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 18:06		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970896

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	33	% Rec.	2754
Terphenyl-d14	90	% Rec.	2754
Nitrobenzene-d5	84	% Rec.	2754

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rail Tank Great ing

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date: 4/30/2009 13:30

Report Date:

4/30/2009 15:15 5/8/2009

Sample ID#:

09970897

Sample Source:

Grab

Client Sample ID: EB-4, S-4, 4.5'-6.0'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 18:48		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970897

Report Date: 5/8/2009

QC Type	Result	Units	Batch	
2-Fluorobiphenyl	85	% Rec.	2755	
Terphenyl-d14	74	% Rec.	2755	
Nitrobenzene-d5	100	% Rec.	2755	

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



### Serving the chemical industry since 1986 Specially Comment - Laborating Services - Ray Tark Commis

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

5/1/2009 10:15 5/1/2009 12:50

Report Date:

5/8/2009

Sample ID#:

e **ID#:** 0

09970917

Sample Source: Client Sample ID: Grab

Site:

EB-5, S-3, 4'-6'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 20:55		SW 8270D	PMV

### QC Data by Sample:

Sample ID: **09970917** 

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	54	% Rec.	2758
Terphenyl-d14	70	% Rec.	2758
Nitrobenzene-d5	79	% Rec.	2758

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



### Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Rail Tank Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date:

5/1/2009 10:05

Receipt Date: Report Date: 5/1/2009 12:50 5/8/2009 Sample ID#:

09970916

Sample Source:

Grab

Client Sample ID:

EB-5, S-2, 2'-4'

Site:

City of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Total Cresol	ND	mg/kg	1.5	05/07/09 20:13		SW 8270D	PMV

### QC Data by Sample:

Sample ID: 09970916

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2-Fluorobiphenyl	59	% Rec.	2757
Terphenyl-d14	53	% Rec.	2757
Nitrobenzene-d5	64	% Rec.	2757

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical Habitatory Services - Adi. Tank-Ceaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date:

5/1/2009 09:55

Receipt Date: Report Date: 5/1/2009 12:50 5/8/2009 Sample ID#:

09970915

Sample Source:

Grab

Client Sample ID:

EB-5, S-1, 0'-2'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analys
Semi Volatiles							
1,2,4,5-Tetrachlorobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
1,3,5-Trinitrobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
1,4-Naphthoquinone	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
1,4-Phenylenediamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
1-Naphthylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,3,4,6-Tetrachlorophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,4,5-Trichlorophenol	ND	mg/kg	0.5	05/07/09 <b>20</b> :13		SW 8270D	PMV
2,4,6-Trichlorophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,4-Dichlorophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,4-Dimethylphenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,4-Dinitrophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,4-Dinitrotoluene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,6-Dichlorophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2,6-Dinitrotoluene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Acetylaminofluorene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Chloronaphthalene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Chlorophenol	ND	mg/kg	0.5	05/07/09 <b>20</b> :13		SW 8270D	PMV
2-Methyl-4,6-dinitrophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Methylnaphthalene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Naphthylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Nitroaniline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Nitrophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
2-Picoline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
3,3'-Dichlorobenzidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
3,3'-Dimethylbenzidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
3-Methylcholanthrene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV

Reviewed by:

Truscee M Vascar

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specials Chemical - Laboratory Services - Rulf Tark Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date: Receipt Date:

5/1/2009 09:55 5/1/2009 12:50

Report Date:

5/8/2009

Sample ID#:

09970915

Grab

Sample Source: Client Sample ID:

EB-5, S-1, 0'-2'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
3-Nitroaniline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Aminobiphenyl	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Bromophenyl phenyl ether	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Chloro-3-methylphenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Chloroaniline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Chlorophenyl phenyl ether	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Nitroaniline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Nitrophenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
4-Nitroquinoline-1-oxide	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
5-Nitro-o-Toluidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
7,12-	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Dimethylbenz(a)anthracene							
a,a'-Dimethylphenethylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Acenaphthene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Acenaphthylene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Acetophenone	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Aniline	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Anthracene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Azobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzo(a)anthracene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzo(a)pyrene	0.63	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzo(b)fluoranthene	1.82	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzo(ghi)perylene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzo(k)fluoranthene	1.75	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzoic Acid	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Benzyl Alcohol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
•	•					ለርዴፍ ው	

Reviewed by:

trace M Vaccar

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Ray, Tank Cleaning

#### Report of Analysis

Name:

American Geotech

Ryan Jackson 601 Ohio Avenue

Charleston, WV 25302

Sample Date:

5/1/2009 09:55

Receipt Date: Report Date:

5/1/2009 12:50

5/8/2009

Sample ID#:

09970915

Sample Source:

Grab

Client Sample ID: Site:

EB-5, S-1, 0'-2'

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
Bis (2-chloroethyl) ether	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Bis (2-ethylhexyl) phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Bis(2-chloroethoxy)methane	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Bis(2-chloroisopropyl)ether	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Butyl benzyl phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Carbazole	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Chrysene	1.12	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Dibenzo(a,h)anthracene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Dibenzofuran	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Diethyl phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Dimethyl phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Di-n-butyl phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Di-n-octyl phthalate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Diphenylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Ethyl Methanesulfonate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Fluoranthene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Fluorene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Hexachlorobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Hexachlorobutadiene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Hexachlorocyclopentadiene	ND	mg/kg	1	05/07/09 20:13		SW 8270D	PMV
Hexachloroethane	ND	mg/kg	1	05/07/09 20:13		SW 8270D	PMV
Hexachloropropene	ND	mg/kg	1	05/07/09 20:13		SW 8270D	PMV
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Isophorone	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Isosafrole	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
m/p-Cresol	ND	mg/kg	1	05/07/09 20:13		SW 8270D	PMV

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Specially Chemical - Laboratory Services - Said Tank Clearing

#### Report of Analysis

Name:

American Geotech

Ryan Jackson

601 Ohio Avenue

Charleston, WV 25302

Sample Date:

5/1/2009 09:55

Receipt Date:

5/1/2009 12:50

**Report Date:** 5/8/2009

Sample ID#:

09970915

Sample Source:

Grab

Client Sample ID:

EB-5, S-1, 0'-2'

Site:

CIty of Charleston Railroad Trussel

Parameter	Sample Result	Units	MDL	Analysis Start	Analysis End (If Applicable)	Method	Analyst
Semi Volatiles							
m-Dinitrobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Methapyrilene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Methyl Methanesulfonate	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Naphthalene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Nitrobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosodiethylamine	ND	mg/kg	1	05/07/09 20:13		SW 8270D	PMV
N-Nitrosodimethylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosodi-n-butylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitroso-di-n-propylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosodiphenylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosomethylethylamine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosomorpholine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosopiperidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
N-Nitrosopyrolidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
o-Cresol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
o-Toluidine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
p-(Dimethylamino)azobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Pentachlorobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Pentachloronitrobenzene	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Phenacetin	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Phenanthrene	1.03	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Phenol	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Pyrene	1.61	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Pyridine	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Safrole	ND	mg/kg	0.5	05/07/09 20:13		SW 8270D	PMV
Total Cresol	ND	mg/kg	1.5	05/07/09 20:13		SW 8270D	PMV

Reviewed by:

Trisacco M Vascar

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536



Serving the chemical industry since 1986 Special Chemical - Libertanop Services - Rain Tark Cleaning

### QC Data by Sample:

Sample ID: 09970915

Report Date: 5/8/2009

QC Type	Result	Units	Batch
2,4,6-Tribromophenol	18	% Rec.	2756
2-Fluorobiphenyl	25	% Rec.	2756
2-Fluorophenol	42	% Rec.	2756
Nitrobenzene-d5	21	% Rec.	2756
Phenol-d5	39	% Rec.	2756
Terphenyl-d14	21	% Rec.	2756

Reviewed by:

Priscilla Vassar

AC&S, Inc. P.O. Box 335 Nitro, WV 25143 304-755-0536

	CHAI	CHAIN OF CUSTODY RECORD	Page_/_ of _/_
ACES, Incorporated	West 19th Street	19th Street PAR Industrial Park	Phone: (304) 755-0536
Analytical Services Division	P.O. Box 335	Nitro, WV 25143	Fax: (304) 755-1982

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